Serial No.: 10/810,455 Filing Date: March 27, 2004

Inventor: Gust

Title: Center Pivot Wing Flotation Method and Apparatus

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In The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (Currently Amended) A method for providing flotation to a wing of an agricultural seeder relative to the ground, comprising the steps of:
 - a) providing a wheel-supported main frame adapted to be removably affixed to a tractor for movement along the ground in a direction of travel;
 - b) providing a first elongated wing with an inner end and an opposing outer end, the first wing having a longitudinal axis generally perpendicular to the direction of travel and a center point along the longitudinal axis generally equidistant from the inner and outer ends;
 - c) providing a first plurality of [seeders] <u>agricultural implements</u> affixed to the first wing and generally regularly spaced along the longitudinal axis thereof;
 - d) providing a first elongated support arm pivotally affixed at one end to the main frame and at the other end to the center point of the first wing;
 - e) providing a first hydraulic cylinder interconnecting directly at the first support arm and directly at the main frame such that the first cylinder can raise the first wing to a transport position and lower the first wing to a working position in contact with the ground;
 - f) providing a second elongated wing with an inner end and an opposing outer end, the second wing having a longitudinal axis generally perpendicular to the direction of travel and a center point along the longitudinal axis generally equidistant from the inner and outer ends, said inner ends of said respective first and second wings being generally adjacent to each other in the working position and form a generally continuous line across the width of the seeder;

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providing a second plurality of [seeders] agricultural implements affixed 23 g) to the second wing and generally regularly spaced along the longitudinal axis 24 25 thereof; providing a second elongated support arm pivotally affixed at one end to h) 26 the main frame opposite the point at which the first support arm is affixed and at 27 the other end to the center point of the second wing such that the first and second 28 wings are on opposite side of the main frame; 29 providing a second hydraulic cylinder interconnecting directly at the 30 i) second support arm and directly at the main frame such that the second cylinder 31 can raise the second wing to a transport position and lower the second wing to a 32 working position in contact with the ground; 33 lowering the first and second wings to the ground by activating the 34 i) respective first and second hydraulic cylinders; and 35 locking the first and second hydraulic cylinders in the lower position k) 36 whereby the first and second wings float about the point at which the first and 37 second support arms are pivotally affixed to the center points of the respective 38 first and second wings, 39 wherein the first and second wings are only attached to the wheel-supported main frame 40 by the first and second support arms, respectively, so that inner and outer ends pivot freely only 41 about the center point of each first and second wings. 42 2. Cancelled. 1 3. (Previously Presented) The method of claim 1, including the step of: 1 activating the first and second hydraulic cylinders at the same time to raise and lower the first 2 and second winds in substantial unison. 3

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4. (Currently Amended) An agricultural seeder comprising:

a wheel-supported main frame with first and second opposing lateral sides and adapted to be removably affixed to a tractor for movement along the ground in a direction of travel;

first and second elongated wings each with an inner end and an opposing outer end and each having a longitudinal axis generally perpendicular to the direction of travel and a center point along the longitudinal axis generally equidistant from the respective inner and outer ends;

a plurality of [seeders] <u>agricultural implements</u> affixed to the first and second wings and generally regularly spaced along the longitudinal axes thereof;

a first elongated support arm pivotally affixed at one end to the first lateral side of the main frame and at the other end to the center point of the first wing;

a second elongated support arm pivotally affixed at one end to the second lateral side of the main frame and at the other end to the center point of the second wing;

a first hydraulic cylinder interconnecting the first elongated support arm and the main frame such that activation of the first cylinder can raise the first wing to a transport position and lower the first wing to a working position in contact with the ground;

a second hydraulic cylinder interconnecting the second elongated support_arm and the main frame such that activation of the second cylinder can raise the second wing to a transport position and lower the second wing to a working position in contact with the ground, whereby lowering and locking;

the respective inner ends of said wings being closely adjacent to each other when in the working position, forming a generally continuous line across the width of said seeder; and

both the first and second hydraulic cylinders having a lock [thereon] <u>position</u> to hold [the respective cylinder] <u>corresponding wings</u> in the working position whereby when in the working position, the wings float relative to the ground, wherein the first and second wings are only attached to the wheel-supported main frame by the first and second support arms, respectively, so that inner and outer ends float only about the center point of each first and second wings.

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5. (Previously Presented) The seeder of claim 4, further including:

a hydraulic control system connected to the first and second hydraulic cylinders to manage the activation of the cylinders.

6. (Previously Presented) In an agricultural seeder having a main frame with first and second opposing lateral sides and first and second wings pivotably attached thereto and a hydraulic control system that pivots the wings between a raised transport position and a lowered operating position in contact with the ground, the improvement comprising:

the first and second wings each with a longitudinal axis and a center point along their respective longitudinal axes, the first and second wings only pivotably attached to respective lateral sides of the main frame by a structure including first and second substantially identical support arms each having a first end pivotably attached directly at the main frame and an opposing second end pivotably attached directly at the respective wing at the center point such that the wings float only about the center point pivotally attached directly at the second end of the support arm relative to the ground;

each wing having an inner end and an outer end such that in the working position the respective longitudinal axes of the two are generally aligned, with the inner ends closely adjacent to each other thereby forming a generally continuous line along the width of the seeder;

the hydraulic control system includes a first hydraulic cylinder interconnecting the first support arm and the main frame such that activation of the first cylinder can raise the first wing to a transport position and lower the first wing to a working position in contact with the ground; and

the hydraulic control system includes a second hydraulic cylinder interconnecting the second support arm and the main frame such that activation of the second cylinder can raise the second wing to a transport position and lower the second wing to a working position in contact with the ground.

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- 7. (Currently Amended) The improvement of claim 6, further including:
- a plurality of [seeders] <u>agricultural implements</u> affixed to the first and second wings and generally regularly spaced along the longitudinal axes thereof.
- 1 Claims 8 and 9 (Cancelled)
- 1 10. (Currently Amended) The improvement of claim 6, wherein:
 - both the first and second hydraulic cylinders have a lock [thereon] <u>position</u> to hold corresponding wings [the respective cylinder] in the working position whereby when in the working position, the wings float relative to the ground.
- 1 11. (Previously Presented) The method of claim 1, further including the step of:
 2 moving the first and second elongated wings to the transport position wherein both the
 3 first and second elongated wings are generally vertically aligned.
 - 12. (Previously Presented) The agricultural seeder as recited in claim 4, wherein the first and second wings in the transport position are generally vertically aligned.
- 1 13. (Previously Presented) The improvement of claim 6, wherein the first and second wings in the transport position are generally vertically aligned.